NT-201 amendments for Office Action dated October 10, 2004

1. A system for processing a conductive material on a surface of a wafer using a solution, the system comprising:

an electrode ;

a mask having a first surface and a second surface, the mask comprising a plurality of openings extending between the first and second surfaces and being supported between the electrode and the surface of the wafer, wherein the mask and the surface of the wafer are configured to establish relative motion therebetween during the processing; and

a conductive mesh positioned between the first surface of the mask and the electrode and attached to the mask such that the plurality of openings of the mask defines a plurality of active regions of the conductive mesh, wherein the conductive mesh is connected to a power input.

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2. (cancel)

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3. A system for processing a conductive material on a surface of a wafer, the system comprising:

an electrode ;

a mask having a first surface and a second surface, the mask comprising a plurality of openings extending between the first and second surfaces and being supported between the electrode and the surface of the wafer;

a conductive mesh positioned between the first surface and the second surface of the mask such that the plurality of openings of the mask defines a plurality of active regions of the conductive mesh wherein the conductive mesh is configured to connect to a power input; and

a solution configured to wet the electrode and flow through the openings of the mask and through the active regions of the conductive mesh so as to contact the surface of the wafer.

4. The system of Claim 1, wherein the conductive mesh comprises a first area and a second area.

5. The system of Claim 4, wherein the first area is connected to the first power input.

6. The system of Claim 5, wherein the second area is connected to a second power input.

7. An anode assembly useable together with a cathode assembly in a device which is adapted to provide deposition of conductive material from a solution onto a surface of a semiconductor substrate comprising:

an anode which is adapted to be contacted by the solution during deposition of said conductive material;

a conductive element configured to connect to a power source and permit solution flow therethrough; and

a mask having a first surface and a second surface and having openings permitting solution flow therethrough, the first surface of the mask facing the anode and the conductive element being attached to the first surface, said openings of the mask defining active regions of the conductive element by which a rate of conductive material deposition onto said surface is adapted to be varied, wherein the mask and the surface of the substrate is configured to establish relative motion therebetween during the processing.

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8. The anode assembly of Claim 7, wherein said conductive element is a conductive mesh.

9. The anode assembly of Claim 7, wherein said conductive element includes a plurality of electrically isolated sections.

10. (previously canceled)

11. (previously canceled)

12. The anode assembly of Claim 9, wherein the electrically isolated sections are adapted to be connected to separate control power sources.

13. An electrodeposition system for depositing conductive material from a solution onto a surface of a semiconductor substrate comprising:

an electrode which is adapted to be contacted by the solution during deposition of said conductive material;

a conductive element adapted to be connected to a power source and permitting solution flow therethrough; and

a mask lying over the conductive element and having openings permitting solution flow therethrough, said openings defining active regions of the conductive element by which a rate of conductive material deposition onto said surface is adapted to be varied;

wherein the conductive element is sandwiched between top and bottom mask portions which together define said mask.

14. The anode assembly of Claim 7, wherein the conductive element is placed under a lower surface of said mask wherein said lower surface faces the electrode.

15. The anode assembly of Claim 9, wherein one of said electrically isolated sections circumferentially surrounds another of said electrically isolated sections.

16. The anode assembly of Claim 15, wherein the electrically isolated sections are irregularly shaped.

17. The anode assembly of Claim 15, wherein said one of said electrically isolated sections is ring shaped.

18. The anode assembly of Claim 17, wherein the other of said electrically isolated sections is disc shaped.

19. The anode assembly of Claim 9, wherein said electrically isolated sections define adjacent strips.

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20. An apparatus which is adapted to control thickness uniformity during deposition of conductive material from a liquid onto a surface of a semiconductor substrate comprising:

an anode which is adapted to be contacted by the liquid during deposition of said conductive material;

a cathode assembly including a carrier adapted to carry the substrate for movement during said deposition;

a conductive element permitting liquid flow therethrough;

a mask having a first surface and a second surface and having openings adapted to permit liquid flow therethrough, the conductive element being attached to the mask, said openings defining active regions of the conductive element by which a rate of conductive material deposition onto said surface is made variable; and

a power source which is adapted to provide a potential between said anode and said cathode assembly so as to produce said deposition.

21. The apparatus of Claim 20, wherein said conductive element is a conductive mesh.

22. The apparatus of Claim 20, wherein said conductive element includes a plurality of electrically isolated sections.

23. The apparatus of Claim 22, wherein said conductive element includes at least one isolation member separating the electrically isolated sections.

24. The apparatus of Claim 22, wherein said conductive element includes at least one gap separating the electrically isolated sections.

25. The apparatus of Claim 22, wherein the electrically isolated sections are adapted to be connected to separate control power sources.

26. An apparatus which is adapted to control thickness uniformity during deposition of conductive material from an electrolyte onto a surface of a semiconductor substrate comprising:

an anode which is adapted to be contacted by the electrolyte during deposition of said conductive material;

a conductive element adapted to permit electrolyte flow therethrough;

a mask having a first surface and a second surface and having openings permitting electrolyte flow therethrough, the conductive element being positioned between the second surface and the anode and said openings defining active regions of the conductive element by which a rate of conductive material deposition onto said surface is made variable; and

a power source which is adapted to provide a potential between said anode and said surface of the semiconductor substrate so as to produce said deposition,

wherein the conductive element is placed between the first and second surfaces of the mask.

27. (cancelled).

28. The apparatus of Claim 22, wherein one of said electrically isolated sections circumferentially surrounds another of said electrically isolated sections.

29. The apparatus of Claim 28, wherein the electrically isolated sections are irregularly shaped.

30. The apparatus of Claim 28, wherein said one of said electrically isolated sections is ring shaped.

31. The apparatus of Claim 30, wherein the other of said electrically isolated sections is disc shaped.

32. The apparatus of Claim 22, wherein said electrically isolated sections define adjacent strips.

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33. The apparatus of Claim 22, and further comprising at least one control power source which is adapted to supply a voltage to at least one of said electrically isolated sections to vary said rate of conductive material deposition onto a region of said surface.

34. The apparatus of Claim 33, wherein said rate is increased.

35. The apparatus of Claim 33, wherein said rate is decreased.

36. The apparatus of Claim 22, wherein said power source is adapted to additionally supply a voltage to at least one of said electrically isolated sections to vary said rate of conductive material deposition onto a region of said surface.

37. The apparatus of Claim 36, wherein said rate is increased.

38. The apparatus of Claim 36, wherein said rate is decreased.

39. The apparatus of Claim 36, and further comprising at least one additional power source which is adapted to supply an additional voltage to another of said electrically isolated sections.

40. The apparatus of Claim 20, and further comprising at least one control power source which is adapted to supply a voltage to said conductive element to vary said rate of conductive material deposition.

41. The apparatus of Claim 39, wherein said rate is increased.

42. The apparatus of Claim 39, wherein said rate is decreased.

43. The apparatus of Claim 20, wherein said power source is adapted to supply a voltage to said conductive element to vary said rate of conductive material deposition.

44. The apparatus of Claim 43, wherein said rate is increased.

45. The apparatus of Claim 43, wherein said rate is decreased.

46-56. (previously cancelled)

57. An apparatus which is adapted to control thickness uniformity during electroetching of conductive material from a surface of a semiconductor substrate comprising:

an electrode which is adapted to be contacted by a solution during electroetching of said conductive material;

a conductive element permitting electrolyte flow therethrough;

a mask having a first surface and a second surface and having openings permitting electrolyte flow therethrough, the conductive element being positioned between the first surface and the electrode and attached to the mask, said openings of the mask defining active regions of the conductive element by which a rate of conductive material electroetching from said surface is made variable; and

a power source which is adapted to provide a potential between said electrode and said surface of the semiconductor substrate so as to produce said electroetching.

58. The apparatus of Claim 57, wherein said conductive element is a conductive mesh.

59. The apparatus of Claim 57, wherein said conductive element includes a plurality of electrically isolated sections.

60. The apparatus of Claim 59, wherein said conductive element includes at least one isolation member separating the electrically isolated sections.

61. The apparatus of Claim 59, wherein said conductive element includes at least one gap separating the electrically isolated sections.

62. (previously cancelled)

63. (cancelled).

64. (cancelled).

65. (cancelled

66. (cancelled).

67. The system of claim 1, wherein the conductive mesh is positioned between the first surface and the second surface of the mask.

68. The system of claim 1, wherein the conductive mesh comprises a first area and a second area.

69. The system of claim 1, wherein the conductive mesh comprises a plurality of separate areas.

70. The system of claim 69, wherein each area is connected to a different power source.

71. The system of claim 68, wherein the first area is adapted to connect to a first power source.

72. The system of claim 71, wherein the second area is adapted to connect to a second power source.

73. The system of claim 1, wherein the processing is electrodepositing.

74. The system of claim 1, wherein the processing is electropolishing.

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